

## PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Examiner:

Art Unit:

Serial No. 09/856,966

International App. No. PCT/US99/28038

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Title: BORON-CARBIDE SOLID  
STATE NEUTRON DETECTOR  
AND METHOD FOR USING  
THE SAME

CERTIFICATE OF MAILING  
37 C.F.R. 1.8

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**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In compliance with the duty to disclose information material to patentability pursuant to 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97(b)(3) and 1.98(a)(2)(ii), it is requested that this Supplemental Information Disclosure Statement be entered.

In the Information Disclosure Statement filed on May 25, 2001, the Applicants submitted a number of patents and publications that they believed to be material to patentability. As required by 37 C.F.R. § 1.98(a)(2), the Applicants are required to submit "[a] legible copy of each publication or that portion which caused it to be listed." The following is a list of publications that were disclosed in the Information Disclosure Statement for which there was never a legible copy provided to the Patent Office:

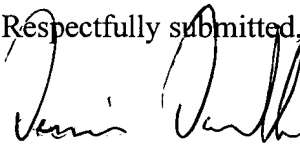
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4. A. Miresghi et al., IEEE Trans. Nucl. Sci. 39, 635 (1992).
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6. D.S. McGregory et al., Nucl. Instr. and Meth. in Phy. Res. A381, 498-501 (1996).
7. J. Mazurowski et al., "Characterization of Boron Carbide Films Formed by PECVD," Wide Bandgap Semiconductors, Mat. Res. Soc. Symp. Proc. 242 (1992) 637-642.
8. Sunwoo Lee et al., "Characterization of Boron Carbide Thin Films Fabricated by PECVD from Boranes," Journ. Appl. Phys. 72 (1992) 4925-4933.
9. Sunwoo Lee et al., "Conductance in Microcrystalline  $B_{1-x}C_x$ /Si Heterojunction Diodes," Mat. Res. Soc. Symp. Proc. 283 (1993) 483-488.
10. Sunwoo Lee and P.A. Dowben, "The Properties of Boron Carbide/Silicon Heterojunction Diodes Fabricated by Plasma-Enhanced Chemical Vapor Deposition," Appl. Phys. A 58 (1994) 223-227.
11. Dongjin Byun et al., "Heterojunction Fabrication by Selective Area Chemical Vapor Deposition Induced by Synchrotron Radiation," Appl. Phys. Lett. 64 (1994) 1968-1970.
12. J.M. Carpinelli et al., "An STM Study of Molecular Intermediates in the Dissociative Adsorption of closo-1,2dicarbadodecaborane on Si(111)," J. Vac. Sci. Technol. B13 (1995) 1203-1206.
13. Dongjin Byun et al., "Comparison of Different Chemical Vapor Deposition Methodologies for the Fabrication of Heterojunction Boron-Carbide Diodes," NanoStructured Materials 5 (1995) 465-473.

14. Ahmad A. Amad et al., "Sputter Deposition of High Resistivity Boron Carbide," Thin Solid Films (1998) in press.
15. Seong-Don Hwang et al., "Fabrication of n-type Nickel Doped  $B_5C_{1+8}$  Homojunction and Heterojunction Diodes," Appl. Phys. Lett. 70 (1997) 1028.
16. Seong-Don Hwang et al., "Fabrication of Boron Carbide-Boron Heterojunction Devices," Appl. Phys. Lett. 68 (1996) 1495-1497.
17. Seong-Don Hwang et al., "Nickel Doping of Boron Carbide Grown by Plasma Enhanced Chemical Vapor Deposition," J. Vac. Sci. Technol. B14 (1996) 2957-2960.
18. Seong-Don Hwang et al., "Nickel Doping of Boron Carbide and Fermi Level Shifts," J. Vac. Sci. Technol. A15 (1997) 854.
19. Y. Kumashiro et al., "Thermal Neutron Irradiation Experiments on  $^{10}B$  single-crystal wafers," J. Less-Common Metals 143 (1988) 71.
20. Yu A. Bykovskii et al., Tech. Phys. Lett. 19, 457 (1993).
21. H. Kitaguchi et al., IEEE Trans. Nucl. Sci. 43, 1846 (1996).
22. D.S. McGregor et al., IEEE Trans. Nucl. Sci. 43, 1357 (1996).
23. Seong-Don Hwang et al., "Phosphorus Doping of Boron Carbon Alloys," in: Advances in Microcrystalline and Nanocrystalline Semiconductors, MRS Symposium Proceedings 452 (1997) 1031-1036.
24. D.N. McIlroy et al., "The Incorporation of Nickel and Phosphorus Dopants into Boron Carbon Alloy Thin Films," Appl. Phys. A66 (1998).

Enclosed with this Supplemental Disclosure Statement is a legible copy of each of the aforementioned publications. Applicant requests that these publications be considered by the Examiner and made of record.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Dennis B. Danella', written over the typed name.

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